AMENDMENTS TO THE CLAIMS

Please insert at page 21, line 7, the paragraph —We claim:—.

Claim 1.   (currently amended) ~~Receiving~~ A receiving apparatus (1) for receiving signals in a digital telecommunication system, ~~with~~comprising:

receiving means (2, 3) for receiving a reference symbol comprising at least two repetition patterns, whereby at least one of said ~~at least two~~ repetition patterns is ~~phase~~ phase-shifted in relation to ~~the other~~ another of said repetition pattern_s_, and

synchronising means (5) for synchronizing the receiving apparatus (1) in the digital telecommunication system using said received reference symbol,

whereby said synchronising means (5) comprises a cross correlation means (16; 24) for cross correlating said at least ~~one of said~~ two repetition patterns with a complex conjugation of an expected repetition pattern within a cross correlation window having a predetermined length, whereby a phase change information corresponding to the phase-shifted repetition patterns in said reference symbol is used in said synchronising means to detect a cross correlation peak which indicates the position of a later one of said repetition patterns.

Claim 2.   (currently amended) A receiving ~~Receiving~~ apparatus for receiving signals in a digital telecommunication system according to claim 1, characterized in, that said at least two repetition patterns are the last two repetition patterns in said reference symbol.

Claim 3.   (currently amended) A receiving ~~Receiving~~ apparatus for receiving signals in a digital telecommunication system according to claim 1, characterized in, that said ~~phase~~ phase-shifted repetition pattern is ~~phase~~ phase-shifted by 180° in relation to ~~said other~~ another repetition pattern.

Claim 4.   (canceled)

00136038

Claim 5.   (currently amended) A receiving ~~Receiving~~ apparatus for receiving signals in a digital telecommunication system according to claim 4~~1~~, characterized in, that said cross correlation means (16) has a cross correlation window length corresponding to the length of one repetition pattern, whereby an output signal of said cross correlation means (16) is supplied to a detection means within the synchronising means for detecting the cross correlation peak.

Claim 6.   (currently amended) A receiving ~~Receiving~~ apparatus for receiving signals in a digital telecommunication system according to claim 5, characterized in, that said detection means comprises a delay means (20) for delaying the output signal of said cross correlation means (16) by one repetition pattern length and a subtraction means (21) for subtracting the output signal of said delay means (20) from the output signal of said cross correlation means (16).

Claim 7.   (currently amended) A receiving ~~Receiving~~ apparatus for receiving signals in a digital telecommunication system according to claim 5, characterized in, further comprising an averaging means (23) for smoothening the output signal of said detection means.

Claim 8.   (currently amended) A receiving ~~Receiving~~ apparatus for receiving signals in a digital telecommunication system according to claim 4~~1~~, characterized in, that said cross correlation means (24) has a cross correlation window length corresponding to the length of two repetition patterns for detecting the position of the cross correlation peak.

Claim 9.   (currently amended) A receiving ~~Receiving~~ apparatus for receiving signals in a digital telecommunication system according to claim 8, characterized in, that a positive and a negative complex conjugation of an expected repetition pattern is used in said cross correlation means (24) for detecting the position of said cross correlation peak.

Claim 10.   (currently amended) A receiving ~~Receiving~~ apparatus for receiving signals in a digital telecommunication system according to claim 4~~5~~, characterized in, that the

00136038

output signal of said cross correlation means (24) or said detection means is supplied to a peak threshold detection means (29) and to a gap detection means (30; 34), whereby said cross correlation peak detected by said cross correlation mean (24) or said detection means is confirmed or not on the basis of the detection result of said peak threshold detection means and said gap detection means.

Claim 11.   (currently amended) A receiving Receiving apparatus for receiving signals in a digital telecommunication system according to claim 10, characterized in, that said peak threshold detection means (29) detects if the output signal of the cross correlation means (24) or the detection means exceeds a predetermined cross correlation peak threshold and the gap detection means (30; 34) detects if the output signal of said cross correlation means (24) or the detection means has been below a predetermined gap threshold before said detected cross correlation peak.

Claim 12.   (currently amended) A receiving Receiving apparatus for receiving signals in a digital telecommunication system according to claim 11, characterized in, that the output signal of said cross correlation means (24) or said detection means is delayed in a delay means before being supplied to said gap detection means.

Claim 13.   (currently amended) A receiving Receiving apparatus for receiving signals in a digital telecommunication system according to claim 11, characterized in, that said gap detection means (34) additionally detects if the output signal of said cross correlation means (24) or the detection means has been below said predetermined gap threshold during a predetermined gap time.

Claim 14.   (currently amended) A synchronising Synchronising method for synchronising a receiving apparatus in a digital telecommunication system, comprising the steps of:

  receiving a reference symbol comprising at least two repetition patterns,
  whereby one of said at least two repetition patterns is phase phase-shifted in relation to another of said the other repetition patterns, and

-6-

synchronising the receiving apparatus in the digital telecommunication system using said received reference symbol, whereby <u>said</u> at least ~~one of said~~ two repetition patterns ~~is~~ <u>are</u> cross correlated <u>with a complex conjugation of an expected repetition pattern</u> within a cross correlation window having a predetermined length<u>, whereby a phase change information corresponding to the phase-shifted repetition patterns in said reference symbol is used in said synchronising step to detect a cross correlation peak which indicates the position of a later one of said repetition patterns</u>.

Claim 15.   (currently amended) <u>A synchronising</u>~~Synchronising~~ method for synchronising a receiving apparatus in a digital telecommunication system according to claim 14, characterized in, that said at least two repetition patterns are the last two repetition patterns in said reference symbol.

Claim 16.   (currently amended) <u>A synchronising</u> ~~Synchronising~~ method for synchronising a receiving apparatus in a digital telecommunication system according to claim 14, characterized in, that said ~~phase~~ <u>phase-</u>shifted repetition pattern is ~~phase~~ <u>phase-</u>shifted by 180° in relation to <u>another</u> ~~said other~~ repetition pattern.

Claim 17.   (canceled)

Claim 18.   (currently amended) <u>A synchronising</u> ~~Synchronising~~ method for synchronising a receiving apparatus in a digital telecommunication system according to claim ~~17~~<u>14</u>, characterized in, that said cross correlation window length corresponds to the length of one repetition pattern, whereby a detecting step after said cross correlation step is performed for detecting the cross correlation peak.

Claim 19.   (currently amended) <u>A synchronising</u> ~~Synchronising~~ method for synchronising a receiving apparatus in a digital telecommunication system according to claim 18, characterized in, that in said detecting step, a delay step for delaying the output signal of said cross correlation step by one repetition pattern length and a subtraction step for subtracting

00136038

the output signal of said delay step from the output signal of said cross correlation step are performed.

Claim 20.   (currently amended) A synchronising ~~Synchronising~~ method for synchronising a receiving apparatus in a digital telecommunication system according to claim 18, characterized by further comprising an averaging step for smoothing the output signal of said detection step.

Claim 21.   (currently amended) A synchronising ~~Synchronising~~ method for synchronising a receiving apparatus in a digital telecommunication system according to claim ~~17~~14, characterized in, that said cross correlation window length corresponds to the length of two repetition patterns for detecting the position of the cross correlation peak.

Claim 22.   (currently amended) A synchronising ~~Synchronising~~ method for synchronising a receiving apparatus in a digital telecommunication system according to claim 21, characterized in, that a positive and a negative conjugation of an expected repetition pattern is used in said cross correlation step for detecting the position of said cross correlation peak.

Claim 23.   (currently amended) A synchronising ~~Synchronising~~ method for synchronising a receiving apparatus in a digital telecommunication system according to claim ~~17~~18, characterized in, that after said cross correlation step or said detection step a peak threshold detection step and a gap detection step ~~are~~ may be performed in parallel, whereby said cross correlation peak detected in said cross correlation step or said detection step is confirmed or not on the basis of the detection results of said peak threshold detection step and said gap detection step.

Claim 24.   (currently amended) A synchronising ~~Synchronising~~ method for synchronising a receiving apparatus in a digital telecommunication system according to claim 23, characterized in, that in said peak threshold detection step it is detected if the output signal of the cross correlation step or said detection step exceeds a predetermined cross correlation peak threshold and in said gap detection step it is detected if the output signal of said cross

correlation step or said detection step has been below a predetermined gap threshold before said detected cross correlation peak.

Claim 25.   (currently amended) A synchronising ~~Synchronising~~ method for synchronising a receiving apparatus in a digital telecommunication system according to claim 24, characterized in, that the output signal of said cross correlation step or said detection step is delayed in a delay step before said gap detection step is performed.

Claim 26.   (currently amended) A synchronising ~~Synchronising~~ method for synchronising a receiving apparatus in a digital telecommunication system according to claim 24, characterized in, that in said gap detection step it is additionally detected if the output signal of said cross correlation step or said detection step has been below said predetermined gap threshold during a predetermined gap time.